

METHOD AND APPARATUS PROVIDING INTEGRATED LOAD MATCHING USING ADAPTIVE POWER AMPLIFIER COMPENSATION

ABSTRACT OF THE DISCLOSURE

An RF power amplifier module can be used without a matching device between the power amplifier module and an antenna. The power amplifier module is constructed and operated to detect, protect and maintain the performance of the power amplifier in the presence of severe VSWR load mismatches, without requiring the use of external circuitry. The RF power amplifier module includes integral detection circuitry for generating a first detection signal having a value that is indicative of the current flowing through an output power transistor and a second detection signal having a value that is indicative the voltage appearing at the output of the output power transistor, as well as integral compensation circuitry for controlling the generation of a plurality of bias current and bias voltage signals to have values that are a function of the values of the first and second detection signals, as well as the current output power level of the RF power amplifier module. Also included is an integral impedance matching circuit, coupled between the output of the output transistor and the output node,, that provides a variable impedance that is selectively controlled by an output signal from the compensation circuitry.